

WHAT IS CLAIMED IS:

1. A method for diagnosing disease in an experimental sample comprising:
 measuring the physiological state of said experimental sample;
 selecting reference samples of known disease state that are similar to said
 5 experimental sample in physiological state; and
 comparing said experimental sample to said reference samples to identify
 the reference sample that matches said experimental sample; and
 diagnosing the experimental sample with the disease of the matching
 reference sample.
- 10 2. A method for diagnosing disease in an experimental sample comprising:
 measuring the physiological state of said experimental sample;
 selecting reference samples of known disease state that are similar to said
 experimental sample in physiological; and
 15 comparing the expression profile of said experimental sample to the
 expression profile of said reference samples to identify the reference sample that
 matches said experimental sample; and
 diagnosing the experimental sample with the disease of the matching
 reference sample.
- 20 3. A method for identifying markers to assay efficacy of drug therapies in
 women comprising:
 measuring the expression profile of a female sample before drug treatment
 and comparing it to the expression profile of a sample from the same subject after
 25 drug treatment.
4. A method to diagnose physiological disorders comprising:
 comparing a gene expression profile from an experimental sample to a
 gene expression profile that represents an average of a plurality of reference
 30 samples with matching indicators of physiological status.

5. A method to identify the physiological status of a sample of unknown origin comprising:

generating an expression profile from the experimental sample, and
 comparing said expression profile to a plurality of expression profiles of
 5 known physiological state.

6. A method to identify markers of different physiological states in humans comprising:

matching a sample from a first physiological state to a sample from a
 10 second physiological state;
 comparing the expression profiles from said first and second physiological
 states; and
 identifying genes that are differentially expressed in said first and second
 physiological states.

15 7. The method of claim 5 wherein said samples are matched according to pharmacological state.

20 8. The method of claim 5 wherein said samples are matched according to disease state.

9. The method of claim 5 wherein said samples are matched according to pharmacological state and disease state.